PRELIMINARY DESIGN OF PRECIPITATED SILICA PLANT FROM SULPHURIC ACID AND SODIUM SILICATE WITH CAPACITY OF 40,000 TON/YEARS

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STATEMENT LETTER

I declare that this final report is original. There are no previous researches that have been submitted in order to get bachelor degree. As I know, there are no statements from other researchers, except the statements that are listed in the bibliography.

In the future, if there is a lie on my statements then I will be fully responsible.

Surakarta, July 2015

Mr.Ismaae Yusoh
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The author says thank to Allah SWT who gives His blessing, so the author has been able finish the final a project "**Preliminary of Precipitated Silica Plant from Sulphuric Acid and Sodium Silicate with Capacity of 40,000 ton/years".**

In arranging the report, the author have get supports from several parties. Because of that, the author wants to say thank to:

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3. Mr. Dr. Ir. Ahmad M Fuadi, MT as supervisor I.
4. Mrs. Kun Harismah Ph.D as supervisor II.
5. Linda Fatmawati as a partner of Our Final Project
6. Nurdeeyah Thank you for all the support.
7. Arbideen and Masoleah thank you for standing by me.

Finally, the writer hopes that this final project report will give benefit for all researchers, writers, and reader. Aamiin

Surakarata, June 2015

Author

ABSTRACT

In Indonesia, precipitated silica plant is an industry that can provide a good opportunity for the country. Indonesia has not been able to meet the needs of precipitated silica, so that Indonesia imports from other countries. From 2005 to 2012 Indonesia has exported 89,801.806 tons of precipitated silica, and the capacity for imports are 111,362.3 tons, so the precipitated silica plant is designing of 40,000 tons/year. Precipitated silica (SiO_2) is the oxidation of non-metallic compounds. it has a solid powder form, white, odorless, insoluble in water, and has a crystalline structure. The process of manufacturing of precipitated silica using silicate acidification uses CSTR reactor (continuous stirrer tank reactor). It operates at a temperature of 90°C and at a pressure of 1 atm. This reactor proceeds in the liquid phase, irreversible, and non-adiabatic. The product of the reactor are separated in rotary vacuum filter, and then the result is a cake of SiO_2. It is dried with dryer.

Utility units of the plant consists of the units of the water provider, the unit of steam supply, electricity and fuel supply unit, and laboratories to maintain the quality of materials and products to conform to the standards. This company is a Limited Incorporation with a system of organizational structure and staff. As a plan, the company is built in Karawang, District Ciampel, and West Java Province. The establishment of the plant requires a total investment (capital investment) amounting to Rp 274,988,392,478.30 and production costs Rp 182,861,209,437.49. Economic analysis obtained BEP 54.8%, SDP 30.6%, 24.31% ROI before tax, ROI after tax (Inc, Ltd) 14.59%. Profit after tax earned Rp 28,550,485,320

MOTTO

Pray on time, surely GOD will always help us.
Ibu Aminah Yusoh

Just be a good person
Mr.Dr. Muhammad Asmee Abubaka

ความภูมิใจสูงสุดในชีวิต คือ การประสบความสำเร็จ ในสิ่งที่คนรอบข้างเชื่อว่าคุณไม่มีวันทำได้

(A great pleasure in life is doing what people say you cannot do.)

Hamidah Yusoh

Always thing that time is important thing that will make us get better and successful
We thing when we dream, and we try to do it, Insya allah it will become true
Muhammad Yusoh

"Don't limit yourself. Many people

Limit themselves to what they

Think they can do. You can go as far

As your mind lets you.

What you believe, remember, you can archive."

Zeal is a volcano, the peak of which the grass of indecisiveness does not grow.

(The spirit is a volcano that on it, the doubts grass never grows)

"Be you. Find you.

Be happy with that."

DEDICATION

This work is dedicated for:

My mom is the one who give a spirit for me, advise me, and also give me a direction so that I can finish this final report.
(I LOVE YOU MOM)

Baba is my idol. Even he is hard but I know that he did for me.
(I LOVE YOU BABA)

For my baba and mama. Thank you for your praying. Thanks for your money. I will replace it later.

My partner **Linda Fatmawati**. When I am down, you are the one who always give me a spirit. Thanks

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